Implementation Plan for Hodgson Brook Watershed Restoration

Prepared by

Danna B. Truslow

D. B. Truslow Associates
Rye, NH

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Hodgson Brook Local Advisory Committee
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I. Introduction

A restoration plan for the Hodgson Brook Watershed in Portsmouth, New Hampshire was completed in June 2004. This plan describes the goals set by the community to restore and protect Hodgson Brook and the actions that are necessary to meet those goals. The final plan titled *Watershed Restoration Plan for Hodgson Brook, Portsmouth, NH 2004* is now available on line at www.des.state.nh.us/HodgsonBrook. Two other documents were also developed as supporting and companion documents. They are the *Hodgson Brook Watershed Monitoring Plan* and the *Environmental Quality Characterization for Hodgson Brook in Portsmouth, New Hampshire*. They are also both available on the Hodgson Brook website hosted by the New Hampshire Department of Environmental Services (DES).

This document, the *Implementation Plan for Hodgson Brook Watershed Restoration*, was produced by using the guidance provided by the restoration and monitoring plans and the framework for accomplishing these goals and actions was created by the Hodgson Brook Local Advisory Committee (LAC). The document includes a summary of the current condition of Hodgson Brook, the recommended management structure for plan implementation, the project planning and tracking system, partnership opportunities and a means of evaluating the success of the program.

A. Site Description and Project Background

The majority of the Hodgson Brook watershed is located in north-central Portsmouth, New Hampshire. It covers 2,135 acres, approximately 20% of the total area of Portsmouth. Over 55% of the watershed area (1,174 acres) is within the Pease International Tradeport. The Portsmouth Traffic circle and the Route 95/Spaulding Turnpike Interchange cut through the middle of the watershed. Figure 1 shows a map of the Hodgson Brook Watershed.

Hodgson Brook is the major source of fresh water to the tidally influenced North Mill Pond. Regular water quality monitoring at the mouth of Hodgson Brook at the Bartlett Street Bridge indicates the presence of pollutants such as fecal coliform, nutrients (primarily nitrogen and phosphorus) and suspended sediments that cause turbidity (cloudiness). Blue mussels collected from North Mill Pond and sediment samples taken from the pond near the mouth of Hodgson Brook contained elevated levels of metals and organic chemicals related to petroleum contamination. It is estimated that 683 acres (32%) of the land area within the watershed is covered in impervious surfaces (e.g., roadways, pavement and buildings). Stormwater runoff from these hard surfaces appears to be the largest source of pollution to the Brook.

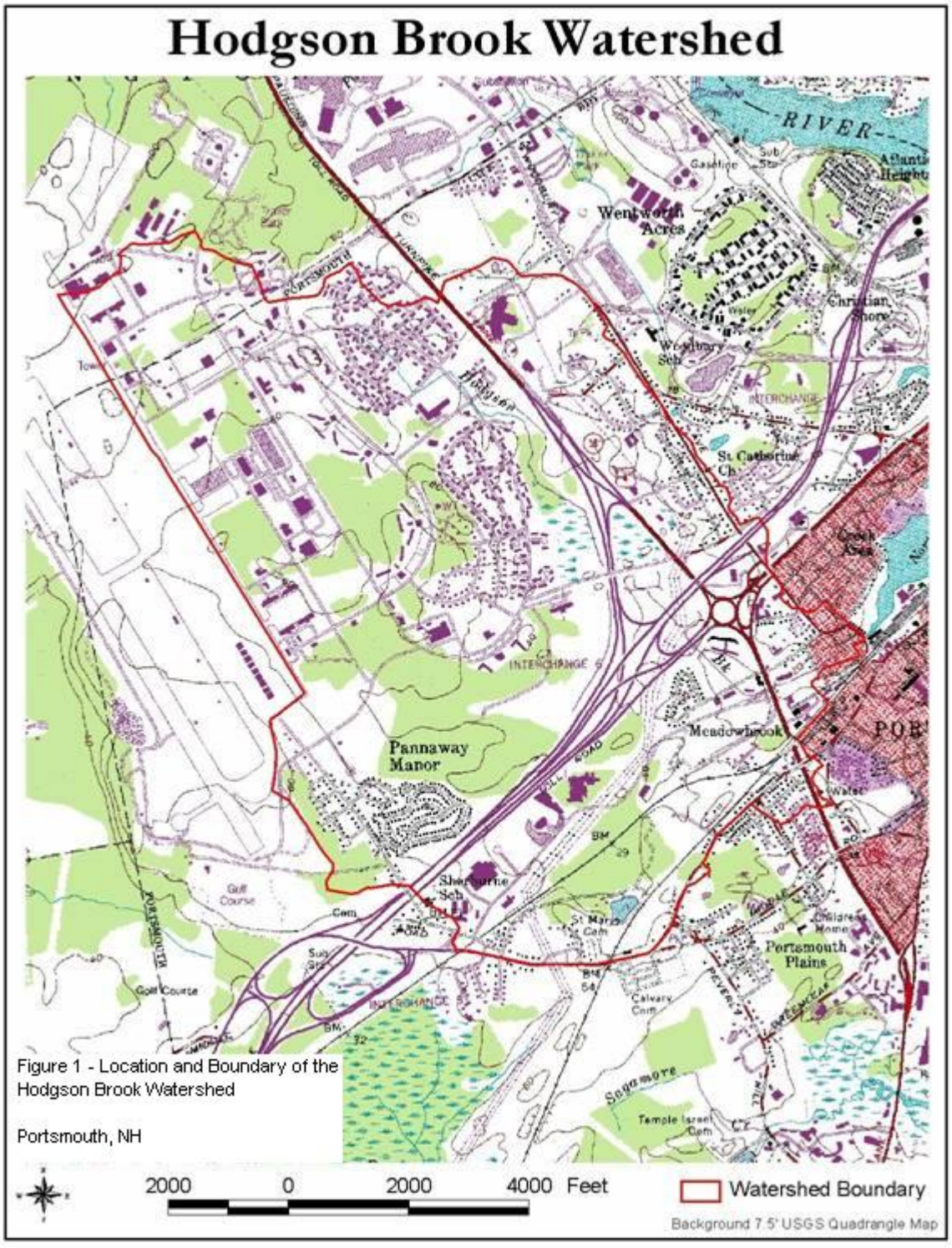

Figure 1 Hodgson Brook Watershed

Though much of the watershed is urbanized, wetland and woodlands still cover part of the upper watershed, especially in the area surrounding Borthwick Avenue and on the Pease Tradeport. Portsmouth zoning information indicates that 254 acres (12%) of the watershed are within the natural resource protection districts. Wetlands make up over 407 acres (19%) of the watershed. In addition, natural, permeable deposits of sand and gravel cover a large area in the western portion of the watershed. These deposits provide water for public water supply wells and, together with the wetlands, serve as a valuable source area for the groundwater and surface water that feed the Hodgson Brook/North Mill Pond system.

The health of the Brook is closely linked to the health of North Mill Pond. The Advocates for the North Mill Pond (ANMP) conducted a comprehensive study of the water and environmental quality of the pond in 1998. Based on this study and the regular sampling of the Brook at the Bartlett Street Bridge, it became clear to the ANMP that in order for the environmental quality of the North Mill Pond to improve, the environmental quality of Hodgson Brook must be restored.

A group of local stakeholders called the Hodgson Brook Local Advisory Board (LAC) was created in 2002. It was made up of Portsmouth residents, City of Portsmouth staff, businesses and technical advisors from the University of New Hampshire and the environmental community. A grant was obtained to fund the work of the committee and to develop an environmental status report, a monitoring plan, a restoration plan and an implementation plan. This document, the *Implementation Plan for Hodgson Brook Watershed Restoration*, is based on the goals and actions developed by the LAC as part of the Hodgson Brook restoration planning process.

B. Goals of the Hodgson Brook Restoration Program

During the summer and early fall of 2003, the LAC learned about the current environmental status of Hodgson Brook and North Mill Pond through a series of presentations by LAC committee members. Based on the information provided, goals were developed to address the environmental problems highlighted in these presentations. Four goals were developed to guide the restoration process. These goals are as follows:

Water Quality Restoration Goal - Improve the water quality of Hodgson Brook to meet New Hampshire State water quality standards through monitoring and pollutant source reduction and elimination by the year 2014.

Water Quality Protection Goal - Improve stormwater quality and decrease stormwater runoff volume in an effort to protect water quality and reduce stormwater impacts.

Outreach and Public Education Goal - Gain community support for and understanding of the Hodgson Brook restoration goals through education, outreach and improved recreational opportunities.

Habitat Improvement Goal - Enhance buffer, shoreline and in stream habitats to encourage more native and diverse plant and animal populations within the Hodgson Brook watershed.

A series of objectives was developed for each goal and specific action plans were developed to address one or more of these objectives. The actions were then prioritized by the LAC into Highest, High and Priority rankings. The prioritized actions are summarized in Appendix A. The detailed action plans are included as an appendix in the *Watershed Restoration Plan for Hodgson Brook.*

The implementation phase of the restoration plan will be based on an adaptive model. The available environmental data are limited and additional study will be conducted during the course of monitoring and restoration to establish a complete baseline and determine sources of contamination. The plan will be a fluid document and will be modified as more information is collected and as a better understanding of the Brook and the sources of degradation are identified.

II. Management Structure – Planning Phase

The Advocates for the North Mill Pond (ANMP), the Hodgson Brook LAC, the City of Portsmouth and the New Hampshire Department of Environmental Services (DES) worked closely together during the restoration planning process. The members of the LAC are listed in Table 1. Ann Smith, Steve Miller and David Burdick, all of the ANMP, were represented on the LAC. Inclusion of the ANMP ensured that the residents of the Hodgson Brook area were represented and that actions of both businesses and residents were considered in the development of the goals, objectives and actions. The City of Portsmouth was also represented by members of the planning and public works departments. These two key departments will be essential to implementing the actions developed by the LAC. Inclusion of the DES in the planning process provided regulatory guidance and compliance and future funding for the project. Other key organizations included the New Hampshire Department of Transportation, Pease Development Authority, New Hampshire Coastal Program, and University of New Hampshire Sea Grant and Jackson Estuarine Laboratory.

III. Recommended Management Structure for Implementation

A final task of the Hodgson Brook LAC was to determine how the Hodgson Brook restoration plan would be carried out. The LAC reviewed many models of successful program structures and finally agreed upon a hybrid public/private model. The LAC determined that the *Watershed Restoration Plan for Hodgson Brook* would be implemented by a Watershed Coordinator (Coordinator) with guidance and oversight from the Hodgson Brook Advisory Board (Board). Together, this working group will be called the Management Team. The Blue Ocean Society (BOS) for Marine Conservation will host the Hodgson Brook Watershed Coordinator and support the implementation of specific actions in the restoration plan. BOS is a non-profit organization based in

Table 1 Members of the Hodgson Brook Local Advisory Committee

Name	Title	Agency/Organization
Matt Baillargeon	Service Manager	Coast Pontiac
Doug Bogen	NH Director	Clean Water Action
Peter Britz	Environmental Planner	City of Portsmouth
Dave Burdick	Research Assistant Professor	UNH Jackson Estuarine Laboratory
Doug DePorter	Assistant District Engineer	NH DOT
Gerald H. Dexter	Engineering & Management Consultant, formerly Director of Engineering	GHD Consulting Pease Development Authority
Steve Jones	Research Associate Professor	UNH Jackson Estuarine Laboratory
Natalie Landry	Coastal Watershed Supervisor	DES
Barbara McMillan	Watershed Outreach Coordinator	DES
Steve Miller	Grant Coordinator	Advocates for the North Mill Pond
Julia Peterson	Extension Specialist	UNH Sea Grant and Cooperative Extension
Peter Rice	City Engineer	City of Portsmouth
Ann Smith	President	Advocates for the North Mil Pond
Sally Soule	Nonpoint Source Pollution Program	NH Coastal Program

Seacoast New Hampshire that promotes awareness and conservation of the marine environment through research and education. The Coordinator will be housed at New Hampshire Community Technical College at the Pease International Tradeport. The Coordinator position will be approximately a half time position.

The roles and responsibilities of both the Advisory Board and Coordinator are described below. The LAC also developed a job description for the Coordinator which is presented below as well.

A. Advisory Board

The Hodgson Brook Advisory Board (Board) guides and assists the Coordinator during the implementation phase of Hodgson Brook restoration. Because the LAC was effective in accomplishing common goals it will be used as a model for formation of the Advisory Board. A similar blend of citizen and business stakeholders from the community and representatives from the University, state and local agencies and non-profit organizations will be sought to form this Board. The Board members will work within their own organizations to advocate for and provide assistance for completion of Hodgson Brook restoration activities.

Responsibilities - The Board will develop policies, oversee the work of the Coordinator and set and revise priorities as needed. Members of the Board will also provide technical guidance and assistance to the Coordinator and will help to secure funding for restoration implementation. Blue Ocean Society will serve as the fiscal agent for the program funds.

Members of the Board will also serve on committees as needed to guide the restoration program.

Representation - The Board will be made up of representatives from the ANMP, BOS, the City of Portsmouth, Pease Development Authority, DES and other state agencies, the University, local non-profits and other citizen and technical advisors as appropriate. This broad representation is essential to the success of the program. Additional representation by local businesses within and outside of the Pease International Tradeport is also critical and will be sought to further improve cooperation and outreach to the many retail and commercial businesses within the watershed. The size of the Board will be between seven and 13 members.

Selection - ANMP, the Coordinator and DES will invite the founding advisory Board members. After the first advisory group is established the Board will approve, by majority, additional members as needed. Members of the LAC will be invited to serve on the Board.

Service - Members of the Board will serve two-year terms, which can be indefinitely renewed. A Board chairman will be chosen by a majority vote of the Board and will serve a maximum of two, two-year terms. Committees will be created at the discretion of the Board.

B. Hodgson Brook Watershed Coordinator

The Blue Ocean Society (BOS) for Marine Conservation will host the Hodgson Brook Watershed Coordinator and support the implementation of specific actions in the *Watershed Restoration Plan for Hodgson Brook*. The Coordinator will be housed at New Hampshire Community Technical College (NHCTC) at the Pease International Tradeport. The Coordinator will be a part-time employee of the BOS. The position will be reviewed and renewed on a two-year basis if funding is available. The Coordinator will spend approximately 20 hours per week working on the Hodgson Brook restoration program. BOS may also choose to utilize the Coordinator for other activities at the expense of that organization. An understanding about the role of the Board Chair in direction and supervision of the Coordinator will be established prior to hiring the Coordinator for the position.

Required Skills - The Coordinator will have at least a bachelor's degree in environmental science, biological science, environmental engineering or a related field with a minimum of two years of experience in environmental work. The Coordinator will possess excellent project management and public speaking skills and will be able to work effectively with both individuals and groups. Grant writing skills are desirable. The Coordinator will also have skill in using Microsoft Office applications, especially, Word, Excel, Outlook and PowerPoint. Strong attention to detail and the ability to maintain organized and accurate records is required and the Coordinator should be willing to take on a broad range of responsibilities in the office and field. Familiarity with the local landscape and regulatory environment will also be a plus.

Responsibilities/Job Description **-** The Hodgson Brook Watershed Coordinator will implement the watershed restoration and monitoring plans with assistance from the Hodgson Brook Advisory Board. In particular the Coordinator will:

- Work to establish and carry out the mission of the program and develop long-term support for the restoration program.
- Implement the actions in the restoration plan,
- Promote environmental stewardship within the watershed to the residential and business community, and
- Report regularly to the community and Board on the progress of the restoration program.

For the first two years, the Coordinator will be establishing partnerships, overseeing the environmental monitoring activities, implementing outreach and education programs, determining restoration opportunities and planning for years three and four of restoration. The tasks to be completed over the first two years include:

- Establish an advisory board to guide implementation of the restoration plan.
- Establish a mission statement and long-term administrative and financial support for the restoration, implementation and monitoring plans.
- Establish partnerships with watershed stakeholders to promote awareness of Hodgson Brook, generate matching funds and services for the project and recruit volunteers to assist with project activities.
- Conduct administrative tasks, including project budgeting, keeping accurate records, writing project reports and researching and writing grants to secure short- and long-term funding.
- Conduct outreach and education efforts to promote awareness of the Brook, including conducting public programs, attending meetings, working with the media and developing outreach materials.
- Implement monitoring activities, including recruiting and working with volunteers to collect stream samples, conducting an illicit discharge detection survey, coordinating a trash and debris survey and creating a method for tracking and reporting on progress and communicating environmental changes to the community and interested stakeholders.

IV. Partnerships

The implementation of the action plans in the *Watershed Restoration Plan for Hodgson Brook* will be accomplished through cooperative efforts of the Coordinator and the Board. The Board will include broad stakeholder and agency representation, however cooperation with other organizations and agencies outside the board will be essential to the successful implementation of the restoration plan. These groups may provide funding and technical assistance and will offer credibility to the program through their participation. Therefore, a great deal of emphasis will be placed on forming and

maintaining partnerships with these groups and individuals. The Coordinator will have primary responsibility for developing and maintaining these partnerships.

A. Identifying Partners

Once the Board is established and the Coordinator is in place, they will work to identify project partners and their roles. These partners will be contacted and a summary of the restoration plan and their potential role in the project will be provided to them. Regular communication with those partners will be maintained and brought into the restoration process as appropriate.

B. Primary Partners

Primary partners are those who have an integral role in the completion of restoration activities. Many of these partners have already participated in the restoration planning process. The primary partners for implementing restoration include the residents and business leaders of the watershed, BOS, City of Portsmouth, DES, Pease Development Authority, University of New Hampshire, ANMP and NH Coastal Program. EPA is also a key partner and contributed to the planning process through technical and financial assistance. Other primary partners may be added during the course of restoration. The role of some key primary partners is described below.

Residents Residents of the Hodgson Brook watershed will serve as volunteers in water quality monitoring and other activities and will attend educational presentations. They will also be involved in educating neighbors and City officials on the importance of Hodgson Brook.

Businesses Business leaders in the watershed will provide opportunities for employees to volunteer for Hodgson Brook activities such as monitoring and surveys. They will also contribute through in-kind professional services and/or cash donations.

Blue Ocean Society BOS will provide the administrative framework for the Coordinator and will be responsible for reporting on Grant progress throughout the first two years of the implementation plan. They will also provide assistance to the Coordinator as needed on outreach and education activities.

Advocates for the North Mill Pond ANMP will provide support in the form of volunteers for monitoring and outreach activities. In addition, the ANMP will work with the Coordinator to place Hodgson Brook information in the North Mill Pond Times newsletter.

City of Portsmouth The City of Portsmouth will be a key partner in the successful implementation of this program. The City Public Works Department will continue to provide GIS maps for outreach and education purposes. In addition, the City is directly involved in the environmental quality of the manmade and natural systems within the City boundaries. The Coordinator will be a liaison between the Board and the departments involved in plan implementation.

New Hampshire Community Technical College NHCTC will provide office space, equipment (except computer and accompanying software) and supplies for the Coordinator at a reduced rate. The NHCTC will also provide meeting space as match for training sessions and committee meetings.

Pease Development Authority – Representatives from the PDA will provide technical information about construction, infrastructure and monitoring on the Tradeport. They will also serve as liaison to the Tradeport businesses.

University of New Hampshire and UNH Cooperative Extension Professors, researchers and students of UNH and staff of UNH Cooperative Extension will provide technical assistance on water quality issues and restoration techniques.

New Hampshire Coastal Program – NHCP will provide guidance and information for restoration and outreach activities.

New Hampshire Department of Environmental Services DES will provide technical assistance for watershed management, water quality monitoring, weed surveys and illicit discharge detection surveys.

C. Secondary Partners

Secondary partner organizations and agencies will be identified by the Coordinator and Board and brought onto the Board or committees as needed. Some of these partners may assume a Primary Partner role as work proceeds. Some secondary partners could include NH Fish and Game Department, the Great Bay National Estuarine Research Reserve, New Hampshire Estuaries Project, the Seacoast Land Trust and Portsmouth neighborhood groups.

V. Public Participation

Information and education activities are a primary component of implementation. The Coordinator will partner with other organizations including UNH SeaGrant, the ANMP, Portsmouth neighborhood associations, DES and local newspapers. The primary messages that are targeted for the first two years of implementation include the benefits of low impact development techniques, awareness of the boundaries of the Hodgson Brook watershed, the benefits of minimizing stormwater runoff impacts and how residents can make a difference through involvement in streamside clean ups and water monitoring.

The methods for involving the community and conveying these messages include the following:

- Participation in volunteer water quality monitoring and surveys for trash/debris & invasive weeds,
- Installation of watershed boundary signage on roadways,

- Promotion of restoration plan goals and current projects through newsletter articles, press releases, presentations, website updates (a Hodgson Brook website exists on the DES website), announcements/interviews on low power radio and Sea Grants' Great Bay Radio and
- Storm drain stenciling projects to educate residents about the connection between stormater runoff and the health of North Mill Pond.

VI. Implementing the Restoration and Monitoring Plans

After the LAC completed the *Watershed Restoration Plan for Hodgson Brook*, they ranked the restoration actions in preparation for implementation of these actions. The ranked action plans and the monitoring plan will help to guide the work of the Coordinator and the Board. The ranked actions are included in Appendix A. The appendix includes the name and number of the action, the priority ranking (Highest, High and Priority), the timeframe for completion (near-, mid- and long-term) and the type of action (regulatory, research, infrastructure change and voluntary). The action plans are described in a summarized fashion. The detailed action plans are included in the *Watershed Restoration Plan for Hodgson Brook.*

The Management Team will have three levels and schedules for planning – a two year strategic planning cycle, an annual work plan/success measurement cycle and a quarterly review cycle. The Coordinator will work with the Board Chair to develop agendas for each Board meeting. The Board Chair will have ultimate responsibility for setting the meeting agenda and schedule. Each planning and review cycle is described below.

A. Two year Strategic Planning

The initial meeting between the Board and the Coordinator will be spent developing a two-year strategic plan based on the prioritized actions and the goals of the monitoring plan. A three-year schedule for strategic planning is proposed to correspond with the schedules developed by the LAC for the restoration plan. Near term, mid-term and long-term were assumed to be in three-year increments. This strategic plan will be revisited and revised every two years.

B. Annual Work Plan Development

The Coordinator will prepare annual work plans based on the prioritized Actions in the restoration plan and monitoring plan. The work tasks required by the two-year grant funded project will mirror the annual work plan. The work plan will be reviewed, modified as need, and then approved by the Board. If the board approves changes to the first two years of the work plan, the Coordinator will request amendments to the grant agreement through the funding agency (DES).

The annual work plan describes the actions to be funded and implemented for the year, the tasks involved in implementing those actions, the schedule for implementing the tasks

and the source of funding for implementation of each action. The detailed action plans included in the restoration plan will be used as a guide for developing work tasks.

C. Tracking System and Reviews

The Board will meet quarterly to review the progress of the annual work plan. The Coordinator will work with the Board to develop a tracking system for the reviews and update the tracking program in preparation for quarterly meetings. The Board will have final responsibility for ensuring that action plans are implemented properly and according to the long-range schedule.

D. Action Plan Implementation

The detailed action plans provide a framework for implementation and provide the suggested involvement level of the various stakeholders (regulatory, research, infrastructure and voluntary).

During the last stages of the restoration planning process, the LAC ranked the Actions into Highest, High and Priority levels as shown in Appendix A. During the course of implementation, the highest priority actions will take precedence, however, if an opportunity exists for implementing a lower priority action, the merits of implementation will be judged and included if the Board agrees.

E. Tasks to be Completed – Years One and Two

As described in Section VII below, funding for the first two years of implementation has been provided, in part, by a DES Watershed Restoration Grant. The specific tasks to be completed include:

1. Prepare coordinator's office and hire coordinator.
2. Participate in VRAP Water Quality Monitoring in the watershed as described in the monitoring plan.
3. Construct and install a stream gauge at the mouth of Hodgson Brook and measure discharge with volunteers.
4. Work with the City of Portsmouth on illicit discharge detection.
5. Conduct trash and debris surveys as described in the Monitoring Plan.
6. Conduct a Weed Survey under the direction of DES.
7. Promote low impact development techniques in new and existing developments in the watershed.
8. Design and install at least four Hodgson Brook Watershed boundary signs.
9. Promote the *Watershed Restoration Plan for Hodgson Brook* through contributions to ANMP newsletter, press releases, website updates and other media outlets.
10. Promote the *Watershed Restoration Plan for Hodgson Brook* through creation of maps, materials, storm drain stenciling, and outreach and education programs.

11. Conduct trash and debris cleanups and promote solid waste reduction within the Watershed.

VII. Funding for the Restoration Program

The funding for restoration will come from a variety of sources. The primary funding vehicle will be the DES Watershed Restoration Grant Program. This is a federally funded program, therefore a 40% match is required as part of the grant agreement. The BOS will track the match including in-kind contributions. The DES funds are secured for the first two years of implementation. Matching funds will be generated through donation of rental space, meeting space, professional services and volunteer time.

A. Cost Estimates

A cost estimate for the first two years of the program has been developed and is summarized in Table 2. The total project cost for the first two years is estimated at $117,000. The focus of the first two years will be environmental monitoring, outreach and education, identification of water quality protection opportunities and securing funding for years three through nine.

Table 2 Cost Estimates for Implementation Activities (Years 1 and 2)

Budget Item	Match ($)	Grant Funds ($)
Salary, Office & Advisory Costs	42,960	67,300
Monitoring Activities	2,802	200
Water Quality Protection Activities	344	--
Outreach & Education	1,847	1,550
Totals	$47,953	$69,050
Total project cost	$117,003	

Notes:
1 Watershed Coordinator will work half-time for two years.
2 Rent & utilities to be provided by the NH Community Technical College at a reduced rate.
3 DES Volunteer River Assessment Program (VRAP) participation includes monthly measurements and sample analysis for six locations in Hodgson Brook. Grant funds support lab analyses.
4 Volunteers construct and install stream gauge at mouth of Brook and measure monthly and post-storm event discharges for a year.

B. Strategy

The implementation of the restoration activities will be coordinated with the ongoing efforts at the City of Portsmouth to upgrade stormwater systems and to address

stormwater runoff. Implementation will also be coordinated with the goals of both the New Hampshire Coastal Program and the New Hampshire Estuaries Project, as the water quality and habitat improvement of the Brook will have a direct impact on the quality of the tidal North Mill Pond which flows to the Piscataqua River.

C. Budget Management

Administration of the grant funding for years one and two for the Coordinator position and restoration activities will be the responsibility of the Blue Ocean Society. The BOS will provide all grant reports to the DES for periodic payment as specified in the grant. The Coordinator will provide preliminary reporting and documentation to the BOS as needed. The Coordinator will also be responsible for tracking all in-kind and cash match amounts as part of quarterly budget tracking and submitting reimbursement requests to DES for payment. The budget will be tracked quarterly and provided to the Board for review.

D. Additional Funding Sources

An important function of the Board will be to identify additional sources of funding for the restoration program. This may include foundation grants, fundraising and procurement of in-kind services to assist the Coordinator in implementing the restoration plan. The Coordinator will also bring potential funding sources to the attention of the Board on a regular basis.

VIII. Evaluating Success

The success of the implementation program will be measured in a variety of ways. The four goals in the *Watershed Restoration Plan for Hodgson Brook* have numerous objectives. Each objective has a long term target and a tool or method for measuring the progress toward the target. Progress toward the water quality restoration goal and objectives will be measured through field monitoring and various programmatic indicators as described in the *Hodgson Brook Watershed Monitoring Plan*. The other three goals (water quality protection, habitat enhancement and education and outreach) will be measured using various surveys and outcomes.

Appendix B lists the long term targets for each objective.

A. Watershed Monitoring Plan Implementation

The *Hodgson Brook Watershed Monitoring Plan* was developed to fill the data gaps identified in the *Environmental Quality Characterization Report for Hodgson Brook* and to provide a framework for monitoring the long-term success of the restoration program. The monitoring plan includes water quality and quantity monitoring, trash surveys, illicit discharge identification and several special studies. The monitoring results will be used to assess the change in the quality of Hodgson Brook. Every two years DES will determine if the designated uses for the Brook are being met based on the water quality

data and information collected through the monitoring activities. The three uses that will be assessed are primary contact recreation, secondary contact recreation and aquatic life use. The assessment will involve a comparison of the data to the state water quality standards and the criteria listed in the DES *Comprehensive Assessment and Listing Methodology*.

The *Hodgson Brook Watershed Monitoring Plan* also recommends that "programmatic" indicators should be tracked. These indicators do not require stream sample collection but are important in assessing the changes in the watershed. Programmatic indicators gage program success through results from quantitative analyses of program initiatives, such as the number of permits issued or inspections conducted for a given program element. Programmatic indicators do not provide specific measurements of waterbody health, but can provide valuable information about potential impacts or program effectiveness (Schuler and Holland, 2000). The suggested indicators are listed below.

1. Number of Wetlands and Site Specific Permit violations in the watershed
2. Number of reported National Point Discharge Elimination System violations from stormwater discharges
3. Number of reported discharges of raw or partially treated wastewater
4. Number of illicit discharges identified and eliminated

The combination of field monitoring data and programmatic indicators information will provide a measure of progress for specific objectives under the water quality restoration goal and to a lesser extent, the habitat enhancement goal. Emphasis will be placed on coordinating and incorporating the work proposed in both the restoration and monitoring plans into the annual work plan.

B. Evaluation

The success of the restoration plan implementation will be evaluated on an annual basis. The Coordinator will summarize the accomplishments of the program for the year according to the established goals and objectives. The Board will then assess the percent completion of the various objectives developed for each goal as part of the restoration plan. This will be accomplished using the long term targets listed in Appendix B. The Advocates for the North Mill Pond, representatives from City of Portsmouth departments and the public at large will be invited to provide comments for the evaluation process and to attend the evaluation session. This evaluation will serve several purposes. The list below describes some benefits of this evaluation process.

- It will demonstrate to the Coordinator and Board where programs have been successful and where improvements can be made.
- It will allow the Management Team to re-prioritize actions, if needed.
- It will demonstrate to the community and the City, the value of the restoration program and how it has improved the quality of the Hodgson Brook Watershed.
- It will demonstrate to the DES and the US EPA, the value of the project and will provide substantiation for future funding.

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Appendix A Prioritized Action Plans

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
WQR-1	Monitor, identify, and reduce/remove sources of bacteria, turbidity, temperature, and dissolved oxygen.	Highest	Baseline monitoring and source identification	Source reduction monitoring	Maintenance Monitoring		x	x	x
WQR-2	Monitor, identify, and reduce/remove sources of toxic contaminants.	Highest	Baseline monitoring and source identification	Source reduction monitoring	Maintenance Monitoring		x	x	x
WQR-3	Monitor, identify, and reduce/remove sources of excess nutrients.	Highest	Baseline monitoring and source identification	Source reduction monitoring	Maintenance Monitoring		x	x	x
WQP-3	Promote infiltration and filtration stormwater practices.	Highest	Initiate	On going	On going	x			
WQP-4	Install a bio-retention area.	Highest	Evaluation and Outreach	Contraction and Construction, Outreach	Outreach	x		x	

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
WQP-8	Retrofit storm drainage to improve water quality.	Highest	Identify sites	Contracting and Construction	Outreach		x	x	
WQP-9	Promote low impact development techniques.	Highest	Research techniques	Coordinate with PB and ZBA	Coordinate with PB and ZBA	x			x
O&E-2 O&E-3	Publish promotion of project and Publicize restoration successes and events.	Highest	Ongoing	Ongoing	Ongoing				x
O&E-4	Promote Hodgson Brook restoration activities through public presentations.	Highest	Create & Present	Present	Present				x
O&E-7	Promote and update the Hodgson Brook Restoration Website	Highest	Ongoing	Ongoing	Ongoing				x
O&E-9O&E-10	Publicize activities through community radio. Publicize activities on Great Bay Area Radio.	Highest	Ongoing	Ongoing	Ongoing				x
O&E-11	Create watershed maps for outreach and education.	Highest	Create maps	Modify maps as needed	Modify maps as needed				x

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
O&E-17	Incorporate the Hodgson Brook Restoration Plan into the Portsmouth Master Plan.	Highest	Work with City	—	—	x			
HW-1	Inventory aquatic species and evaluate instream habitat.	Highest	habitat surveys	Inventories Evaluations	Ongoing Volunteer Monitoring		x		x
HW-5	Research and Implement Hodgson Brook Daylighting.	Highest	Planning	Finish Feasibility Study			x		x
HW-6	Habitat Restoration Feasibility Study	Highest	—	Apply for Funding Conduct study	—		x	x	x
WQR-4	Assess solid waste problems.	High	Survey on rotating schedule	Survey on rotating schedule	Maintenance Monitoring	x	x		x
WQP-1	Protect stream buffers and create a demonstration stream buffer area.	High	Evaluation and Outreach	Contracting and Outreach	Buffer restoration and outreach				x
WQP-5	Identify and correct regulations to better protect stream buffers.	High		Conduct Review	Continue cooperation	x	x		

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
WQP-6	Work with the Pease Development Authority to strengthen buffer protection.	High	Initiate meeting	Continue cooperation	Continue cooperation	x			
WQP-7	Protect priority areas through land conservation.	High	Research land use and ownership	Contact and maintain dialog with landowners	Complete projects		x		
O&E-1	Post Hodgson Brook Watershed road signs.	High	Design,Print,Post	Design,Print,Post	—			x	
O&E-12	Conduct storm drain stenciling.	High	—	Implement stenciling projects	—				x
O&E-13	Promote responsible home and yard practices.	High	—	Workshops	Workshops				x
O&E-15 WQR-5	Organize Hodgson Brook Shoreline Cleanup.	High	Clean ups	Clean ups	Clean ups				x
O&E-16	Inventory Recreational Assets and Opportunities	High	—	Survey Create maps	—		x		x
O&E-18	Recognize good stewardship practices.	High	Ongoing	Ongoing	Ongoing				x

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
O&E-5	Provide tours of the watershed.	High	—	Design and offer tours	—				x
HW-2 HW-3 HW-4	Survey terrestrial wildlife and habitat. Survey bird species and habitat. Evaluate historic and potential fish habitats and species.	High	habitat surveys	Inventories Evaluations	Ongoing Volunteer Monitoring		x		x
WQR-5	Reduce and eliminate sources of solid waste.	Priority	cleanup based on surveys	cleanup based on surveys	clean up of remaining sites	x			x
WQP-2	Promote transportation alternatives.	Priority	Implement	On going	On going				x
O&E-14	Promote responsible home and yard practices through home and garden businesses.	Priority	—	Conduct surveys	Provide info to target audiences				x
O&E-6	Hold a watershed walk-a-thon fundraiser.	Priority	—	Start planning	Hold walk-a-thon				x
O&E-8	Establish “Brook Keepers” volunteer corps.	Priority	Develop training program	Recruit and train volunteers. Volunteer activities	Volunteer activities				x

Action Numbers	Action	Priority	Schedule			Type of Action			
			Near Term	Mid Term	Long Term	Regulatory	Research	Infrastructure	Voluntary
HW-7	Habitat Restoration.	Priority	—	—	Implementation		x		x

Appendix B Tools and Targets for Measuring Success

Goal	Obj. #	Objective	Long Term Target	Tool or Method
Improve the **water quality** of Hodgson Brook to meet NH State Water Quality standards through monitoring and source reduction and elimination by the year 2014.	1.1	Meet Class B water quality standards for bacteria, turbidity, temperature, and dissolved oxygen.	Class B standards in dry weather are met by 2014	Water Quality Monitoring (see Monitoring Plan) & DES Assessments
	1.2	Meet Class B water quality standards for toxic contaminants.	Class B standards are met by 2014	Water Quality Monitoring (see Monitoring Plan) & DES Assessments
	1.3	Hodgson Brook will not have excess nutrients that result in algal blooms and nuisance aquatic plants.	No algal blooms or nuisance aquatic plants by 2014	Volunteer Stream Surveys & DES Assessments
	1.4	Hodgson Brook and its banks will be free of trash and debris.	No trash and debris by 2014	Surveys
Goal	**Obj. #**	**Objective**	**Long Term Target**	**Tool or Method**
Improve the stormwater quality and decrease stormwater runoff volume in an effort to **protect water quality** and reduce stormwater impacts.	2.1	Work with the community to create new stream buffers and protect existing buffers that promote infiltration of stormwater.	Worked with three community groups to create and protect buffers	Workshops and small group sessions
	2.2	Protect priority lands for conservation and protection.	Conserve 5% of the priority lands in the watershed	% of priority lands protected since 2004
	2.3	Identify pollution prevention actions and encourage residents and business owners to take action.	Five (5) pollution prevention efforts by 2014	# of efforts tracked by Coordinator

	2.4	Encourage NH Dept. of Transportation, the City of Portsmouth, Dept. of Public Works and local businesses to use structual and non-structural practices to treat stormwater runoff.	Three (3) workshops targeted to the selected audiences	# of workshops tracked by Coordinator
	2.5	Encourage the City of Portsmouth Planning Board and Professional Planners to incorporate the Hodgson Brook Restoration and Implementation Plans into planning decisions.	Plans incorporated into Portsmouth Master Plan	Incorporated into City Master Plan and used by planners
	2.6	Incorporate low impact development techniques into existing and new development through education and regulations.	LID incorporated into city regulations	Work with City Planning Dept to develop new or modified regulations
Goal	**Obj. #**	**Objective**	**Long Term Target**	**Tool or Method**
Gain community support for and understanding of the Hodgson Brook Restoration goals through **education, outreach and improved recreational opportunities**.	3.1	The residential and business community will know they live and work in the watershed.	75% of those surveyed will know	Survey in 2014
	3.2	The residential and business community will know about the Hodgson Brook restoration and implementation plans.	50% of those surveyed will know	Survey in 2014
	3.3	The residential and business community will know and understand the definition of nonpoint source pollution.	95% of those surveyed will know	Survey in 2014

	3.4	The residential and business community will participate in a stewardship role to help implement the restoration plan.	15% of the total number of businesses and households in the watershed will participate	# tracked by Coordinator (see stewardship definition by Outreach Committee)
	3.5	The residential and business community will learn about and take advantage of passive recreation and education opportunities throughout the Hodgson Brook watershed.	15% of the total number of businesses and households in the watershed will take advantage of recreation opportunities	Survey in 2014
Goal	**Obj. #**	**Objective**	**Long Term Target**	**Tool or Method**
Enhance buffer, shoreline, and in stream habitats to encourage more native and diverse plant and animal populations within the Hodgson Brook watershed.	4.1	Conduct research and inventories of aquatic and terrestrial species and habitats to evaluate the historic and present condition of animal populations & their habitats in the watershed.	Surveys completed for all subwatersheds by 2010	Monitoring, surveys, research
	4.2	Determine opportunities for restoring in-stream, active floodplain, and upland habitats.	List of restoration projects. Engineering designs for five restoration projects	Project design and engineering
	4.3	Restore habitats and take other actions to encourage or enhance wildlife in the aquatic and terrestrial watershed environment.	Five restoration projects completed on priority restoration sites	Restoration and monitoring